

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.





aTD224  
I2I33

Sta

United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Boise,  
Idaho



# Idaho Water Supply Outlook

January 1, 1986

APR 1-88

USDA LIBRARY  
BOISE, IDAHO



# Foreward

## How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

## For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado (New Mexico)	2490 West 26th Ave., Denver, CO 80211
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
Nevada	50 South Virginia Street, Third Floor, Reno, NV 89505
Oregon	1220 Southwest 3rd Ave., 16th Floor, Portland, OR 97204
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82602

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 547, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 98502; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Saskatchewan, and N.W.T. — The Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta, T3C 1A6.

# **Idaho Water Supply Outlook**

**and**

## **Federal — State — Private Cooperative Snow Surveys**

### **Issued by**

Wilson Scaling  
Chief  
Soil Conservation Service  
Washington, D.C.

### **Released by**

Stanley N. Hobson  
State Conservationist  
Soil Conservation Service  
Boise, Idaho

### **Prepared by**

Gerald A. Beard  
Data Collection Office Supervisor  
Soil Conservation Service  
Rm. 345, 304 N. 8th Street  
Boise, Idaho 83702

### **In cooperation with**

A. Kenneth Dunn  
Director  
State of Idaho  
Department of Water Resources  
Boise, Idaho

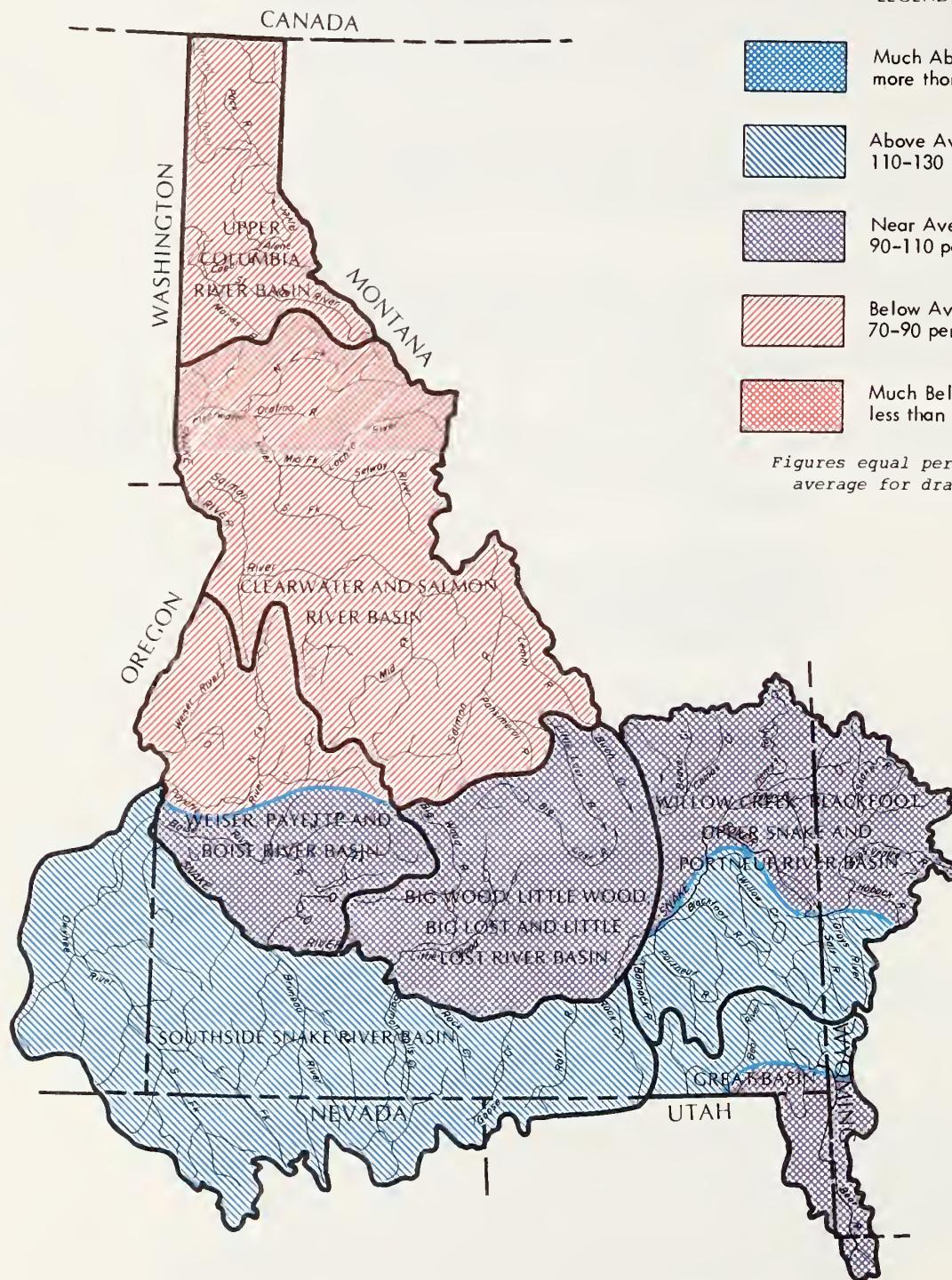
"Programs and assistance of the United States Department of Agriculture are available without regard to race, creed, color, sex, age, or national origin."

STREAMFLOW PROSPECTS  
IDAHO

0 25 50 75 100 MI

0 50 100 150 KM

## LEGEND

Much Above Average  
more than 130 percentAbove Average  
110-130 percentNear Average  
90-110 percentBelow Average  
70-90 percentMuch Below Average  
less than 70 percentFigures equal percent of  
average for drainage.

## GENERAL OUTLOOK

### SUMMARY:

JANUARY 1 SNOWPACK IS GENERALLY BELOW TO WELL BELOW NORMAL IN NORTHERN IDAHO, BELOW TO NEAR NORMAL IN THE CENTRAL AND EASTERN PART OF THE STATE, AND ABOVE TO WELL ABOVE NORMAL IN SOUTHERN IDAHO. APRIL-SEPTEMBER STREAMFLOWS ARE FORECAST TO RANGE FROM BELOW TO SLIGHTLY ABOVE AVERAGE THROUGHOUT THE STATE.

### SNOWPACK:

Snow surveys taken near January 1, 1986 show snowpack conditions vary widely across the state, ranging from well below normal in northern Idaho to well above in the southern and southeastern part of the state. North Idaho's snowpack, from the lower Salmon tributaries northward to the Canadian border range from a low of 55% of normal on the Selway drainage to a high of 72% on the St. Joe River basin. Snowpacks on the central Idaho watersheds range from 71% of average on the South Fork Payette River to 90% of average on the Big Lost River. Upper Snake River basin snowpack ranges from normal on the Teton drainage to 114% of normal on the Henry's Fork drainage, with the Snake River above Jackson reporting 111% of average. Snowpack conditions on the south side of the Snake River from the Owyhee mountains eastward to the Blackfoot and Willow Creek drainages are above to well above normal, ranging from 122% of normal on the Salmon Falls Creek basin to 156% of normal on the Owyhee basin. The Great basin in southeastern Idaho is also well above normal.

### PRECIPITATION:

In general, precipitation amounts over Idaho for the October through December period ranged from below to slightly above normal. Currently, precipitation amounts for the water year (which began October 1, 1985) range from a low of 74% of average on the Clearwater drainage to a high of 118% on the Snake River basin. December was very cold and generally dry for most of the state. Most of the December precipitation fell in the first ten days of the month before a large stagnant high pressure system built over the state and kept all weather systems from entering Idaho. Precipitation over northern and central Idaho was well below normal for December. Salmon and Port Hill received only 20% of their normal precipitation during the month. Southern Idaho precipitation amounts December varied from near normal in the southwestern part of the state to slightly above normal in the Southeast. Pocatello received 120% of normal for the month.

#### **RESERVOIRS:**

Reservoir carryover storage is near normal at 94% of average in 17 key reservoirs across the state. Most reservoir storage figures range between 70 and 130 percent of average. The exceptions are Coeur d'Alene Lake at 18% of normal, Salmon Falls Reservoir at 217% and Oakley Reservoir at 156%.

#### **STREAMFLOW:**

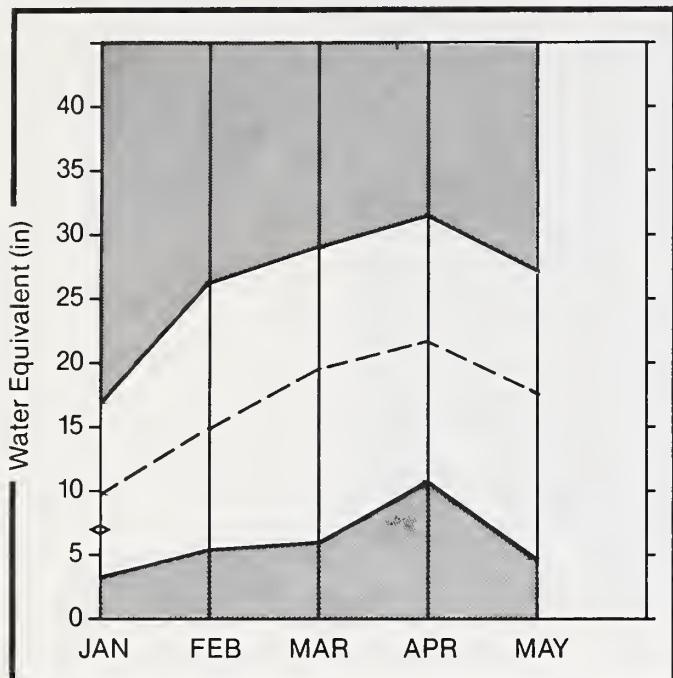
In general, April-July seasonal volume streamflows are forecast to be below normal in northern Idaho, near normal in the central and eastern part of the state and above normal in extreme southern and southeastern Idaho. Current forecasts range from a low of 75% of average for the Clearwater at Spalding to a high of 120% of average on Oakley Reservoir inflow, Portneuf River at Topaz and Montpelier Creek near Montpelier.

#### **SOIL MOISTURE:**

In general, soil moisture conditions are below normal over most of Idaho, the exception being in the extreme southeastern part of the state where soil moisture conditions are near average. This is the result of the dry conditions that existed over most of the state during the summer and early fall. Precipitation was generally above normal in October and November, but cooler temperatures brought most of this moisture in the form of snow which added little moisture to the soil profile.

# Upper Columbia Basin

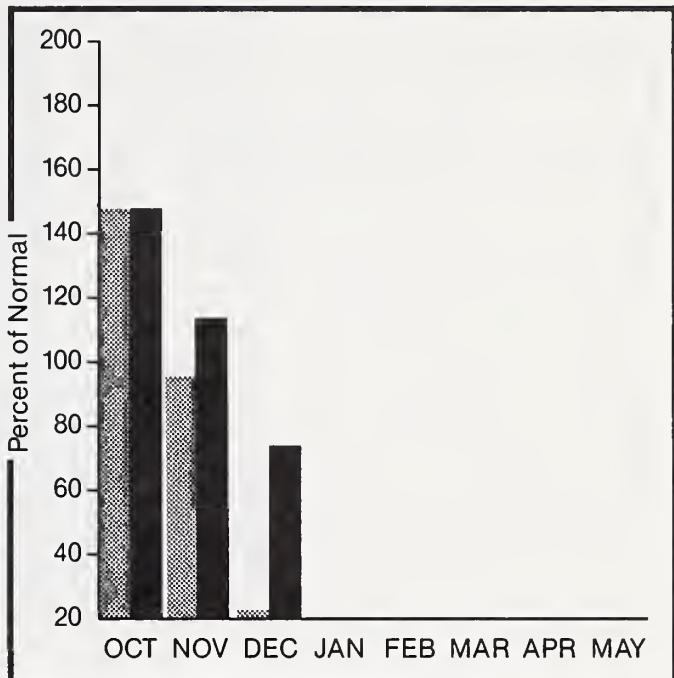
Mountain snowpack\* (inches)



\*Based on selected stations

Maximum           Average        
Minimum           Current     

Precipitation\* (percent of normal)



\*Based on selected stations

Monthly precipitation        
Year to date precipitation     

## WATER SUPPLY OUTLOOK:

Snowpack conditions are currently below to well below normal, ranging from 65% of average on the Priest River drainage to 72% of average on the St. Joe drainage. April-July seasonal volume streamflows are forecast to be below normal. Reservoir carryover storage ranges from 112% of average in Pend Oreille Lake to only 18% of average in Couer d'Alene Lake. Soil moisture conditions are also below normal.

For more information contact your local Soil Conservation Service office.

**UPPER COLUMBIA RIVER BASIN**

**STREAMFLOW FORECASTS**

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
KOOTENAI at Leonia *	APR-SEP	8602.0	8420.0	97.0	128.9	66.8				
	APR-JUL	7498.0	7340.0	97.0	128.8	67.0				
	APR-JUN	6051.0	5930.0	98.0	129.1	66.9				
CLARK FORK at White Horse Rapids *	APR-SEP	13575.0	12000.0	88.0	119.4	57.4				
	APR-JUL	12351.0	10900.0	88.0	119.3	57.3				
	APR-JUN	10570.0	9300.0	87.0	119.0	57.0				
PEND OREILLE LAKE inflow *	APR-SEP	15150.0	13100.0	86.0	116.5	56.5				
	APR-JUL	13875.0	12000.0	86.0	116.5	56.5				
	APR-JUN	12010.0	10450.0	87.0	117.0	57.0				
PRIEST RIVER at Priest *	APR-SEP	885.0	745.0	84.0	121.1	47.2				
	APR-JUL	832.0	700.0	84.0	121.2	47.1				
SPOKANE at Post Falls *	APR-SEP	2848.0	2200.0	77.0	128.2	26.3				
	APR-JUL	2754.0	2130.0	77.0	128.4	26.3				
ST. JOE at Calder	APR-SEP	1294.0	1030.0	79.0	112.6	46.6				
	APR-JUL	1225.1	980.0	79.0	113.0	47.0				
COEUR D'ALENE at Enaville	APR-SEP	844.2	658.0	77.0	130.9	25.0				
	APR-JUL	804.8	625.0	77.0	130.7	24.6				

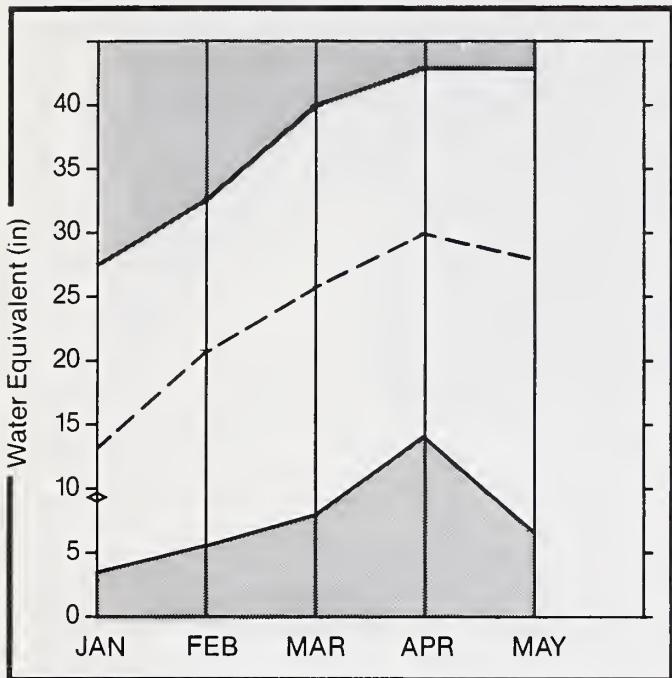
RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS				
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
	THIS YEAR	LAST YEAR	AVE.				LAST YR.	AVERAGE
HUNGRY HORSE	3451.0	2562.0	2664.0	2614.0	Kootenai ab Bonners Ferry	14	64	79
FLATHEAD LAKE	1791.0	1354.0	1017.0	1376.0	Clark Fork River	103	54	76
PEND OREILLE	1155.1	371.0	431.0	331.2	Priest River	67	52	69
NOXON RAPIDS	335.0	301.1	318.0	316.8	Rathdrum Creek	5	35	65
COEUR D'ALENE	225.1	25.5	49.9	142.6	Hayden Lake	0	0	0
PRIEST LAKE	NO REPORT				Coeur d'Alene River	6	34	70
					St. Joe River	4	37	72
					Spokane River	10	35	71
					Palouse River	0	0	0

\*Corrected for upstream diversions or changes in reservoir storage.

Average is for 1961-80 period.

# Clearwater and Salmon River Basin

Mountain snowpack\* (inches)



\*Based on selected stations

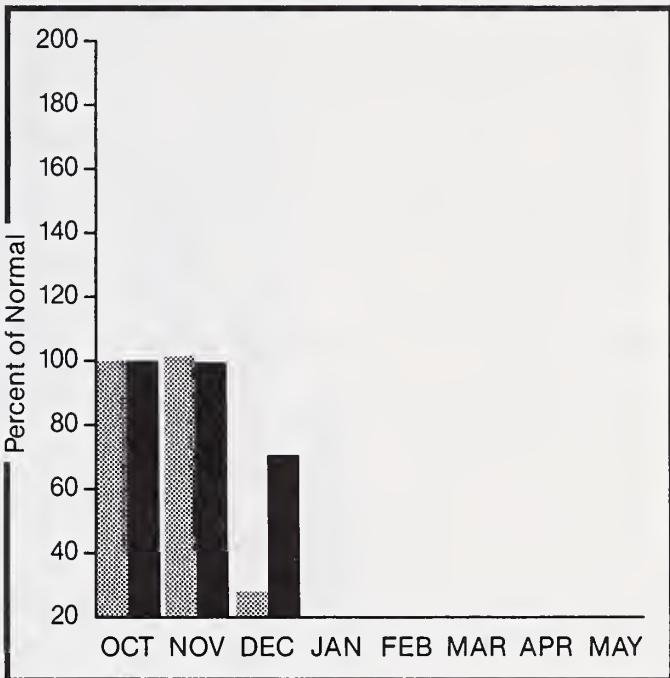
Maximum 

Average 

Minimum 

Current 

Precipitation\* (percent of normal)



\*Based on selected stations

Monthly precipitation 

Year to date precipitation 

## WATER SUPPLY OUTLOOK:

In general, snowpack conditions are well below normal over most of the Clearwater and lower tributaries to the Salmon River, improving to slightly below normal on the Salmon River above Salmon. April-July seasonal volume streamflows are currently forecast to range from 75% of average on the Clearwater River at Orofino to 82% of average on the Salmon River at Salmon.

For more information contact your local Soil Conservation Service office.

**CLEARWATER AND SALMON RIVER BASIN**

**STREAMFLOW FORECASTS**

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
CLEARWATER at Orofino	APR-SEP	5185.0	3890.0	75.0	108.0	42.0				
	APR-JUL	4917.0	3690.0	75.0	108.1	42.0				
CLEARWATER at Spalding	APR-SEP	8460.0	6720.0	79.0	104.4	54.4				
	APR-JUL	8000.0	6360.0	79.0	104.5	54.5				
DWORSHAK RESERVOIR inflow	APR-SEP	2985.0	2530.0	84.0	111.8	58.1				
	APR-JUL	2905.0	2380.0	84.0	111.8	57.9				
SALMON at Whitebird	APR-SEP	6876.0	5520.0	80.0	105.3	55.3				
	APR-JUL	6211.0	4990.0	80.0	105.3	55.3				
SALMON at Salmon	APR-SEP	1053.0	861.0	81.0	127.7	35.8				
	APR-JUL	899.0	735.0	81.0	127.8	35.7				

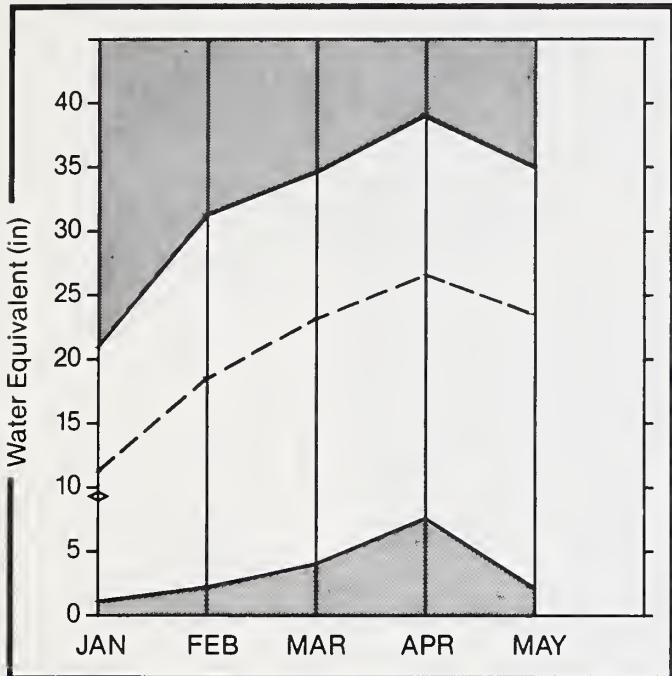
RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.0	THIS YEAR AS % OF LAST YR. AVERAGE
		THIS YEAR	LAST YEAR	AVE.			
DWORSHAK	2016.0	913.7	1157.6	---	North Fork Clearwater	9	39 71
					Lochsa River	4	44 63
					Selway River	2	41 55
					Clearwater River	13	41 67
					Salmon River ab Salmon	5	66 88
					Lemhi River	0	0 0
					Salmon River Total	15	53 74

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

# Weiser, Payette, and Boise River Basin

Mountain snowpack\* (inches)



\*Based on selected stations

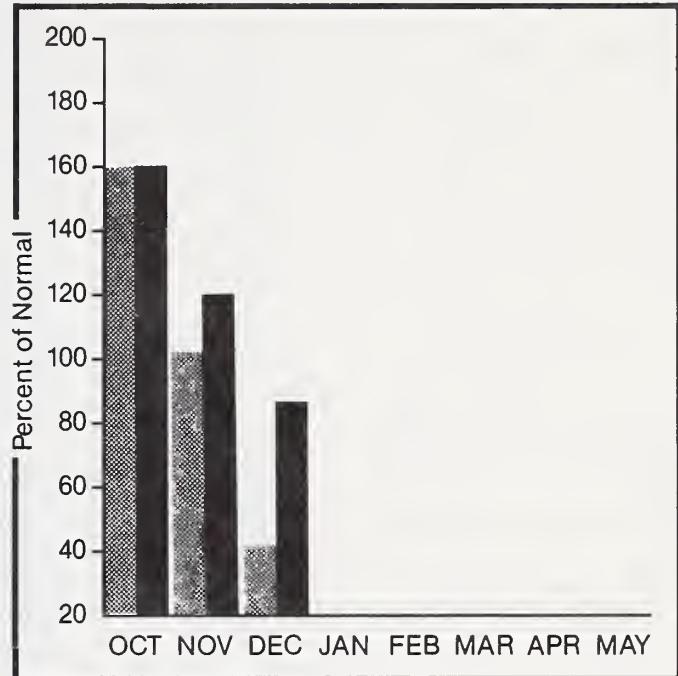
Maximum

Average

Minimum

Current

Precipitation\* (percent of normal)



\*Based on selected stations

Monthly precipitation

Year to date precipitation

## WATER SUPPLY OUTLOOK:

Snowpack conditions range from 71% of average on the S. Fork Payette to 89% on the S. Fork Boise River. The exceptions are the Deadwood River and extreme headwaters of the N. Fork Payette where snowpacks are well below normal. April-July streamflows are forecast to range from 79% of normal on the Weiser nr Weiser to 95% on the Boise at Twin Springs. Reservoir carryover storage is reported to be near normal with the exception of Lucky Peak Reservoir which is only 31% of average.

For more information contact your local Soil Conservation Service office.

**WEISER, PAYETTE AND BOISE RIVER BASIN**

**STREAMFLOW FORECASTS**

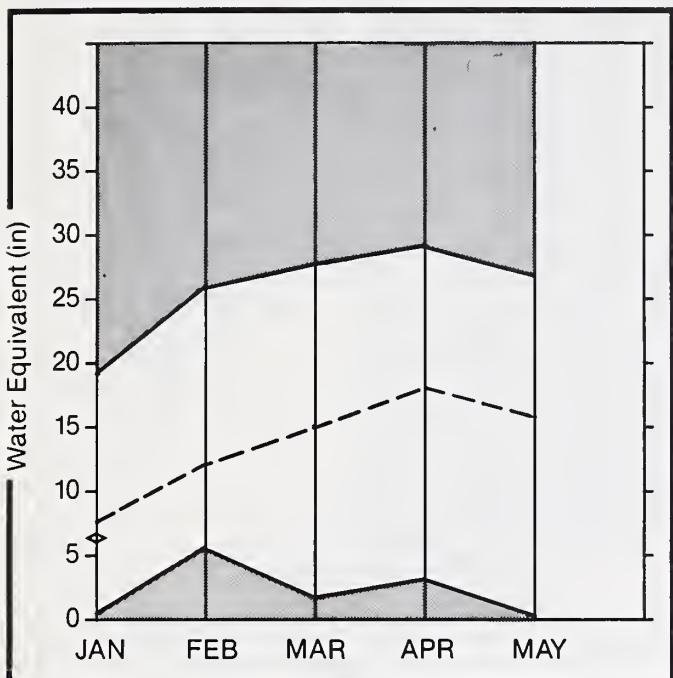
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
WEISER nr Weiser	APR-SEP	427.0	338.0	79.0	125.1	33.3				
	APR-JUL	399.0	316.0	79.0	125.3	33.1				
PAYETTE nr Horseshoe	APR-SEP	1817.0	1640.0	90.0	120.1	60.4				
	APR-JUL	1678.0	1510.0	90.0	119.8	60.2				
NF PAYETTE at Cascade	APR-SEP	553.4	497.0	89.0	114.7	64.9				
NF PAYETTE at Cascade	APR-JUL	517.8	467.0	90.0	115.1	65.3				
NF PAYETTE nr Banks	APR-SEP	712.4	640.0	89.0	119.9	59.8				
	APR-JUL	671.4	603.0	89.0	119.7	69.8				
SF PAYETTE at Lowman	APR-SEP	497.2	447.0	89.0	119.9	59.9				
	APR-JUL	440.6	396.0	89.0	119.8	59.9				
DEADWOOD RESERVOIR inflow	APR-JUL	141.0	124.0	87.0	117.0	58.9				
BOISE RIVER nr Twin Springs	APR-SEP	705.4	670.0	94.0	125.0	64.9				
	APR-JUL	650.0	620.0	95.0	125.4	65.4				
SF BOISE at Anderson Dam	APR-SEP	589.5	530.0	89.0	115.8	63.9				
	APR-JUL	551.3	496.0	89.0	115.9	64.0				
BOISE RIVER nr Boise	APR-SEP	1571.4	1460.0	92.0	121.9	63.9				
	APR-JUL	1454.4	1350.0	92.0	121.8	63.8				
	APR-JUN	1279.4	1190.0	93.0	122.0	64.0				

RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS					
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF		
	1	THIS YEAR	LAST YEAR	AVE.			1	LAST YR.	AVERAGE
MANN CREEK		NO REPORT			Mann Creek	0	0	0	0
CASCADE	653.2	402.3	401.9	353.4	Weiser River	4	49	75	
DEADWOOD	161.9	79.5	102.9	68.7	North Fork Payette	8	46	73	
ANDERSON RANCH	423.2	260.3	288.4	270.7	South Fork Payette	6	55	71	
ARROWROCK	286.6	191.4	136.4	202.5	Payette River Total	14	49	73	
LUCKY PEAK	278.2	15.3	26.6	49.8	Middle & North Fork Boise	8	62	83	
LAKE LOWELL (DEER FLAT)	169.0	131.8	124.4	108.5	South Fork Boise River	8	65	89	
					Boise River Total	17	63	89	
					Canyon Creek	1	81	194	

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

# Big Wood, Little Wood, Big Lost, and Little Lost River Basin

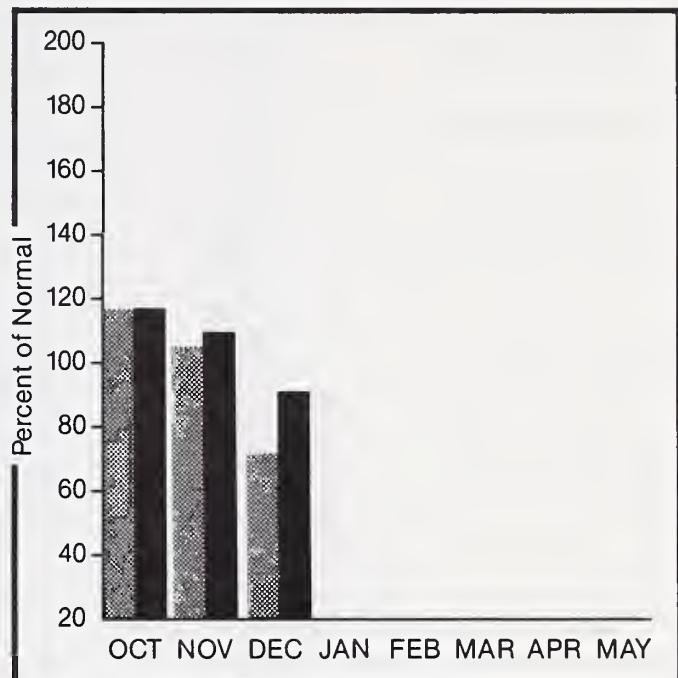
Mountain snowpack\* (inches)



\*Based on selected stations

Maximum           Average        
Minimum           Current     

Precipitation\* (percent of normal)



\*Based on selected stations

Monthly precipitation           Year to date precipitation     

## WATER SUPPLY OUTLOOK:

Snowpack conditions currently range from 80% of average on the Little Lost River basin to 111% of average on the Camas Creek drainage near Fairfield. April-July streamflow volumes are forecast to be near normal. Reservoir carryover storage is reported to be near normal while soil moisture conditions remain below normal throughout the basin.

For more information contact your local Soil Conservation Service office.

**BIG WOOD, LITTLE WOOD, BIG LOST AND LITTLE LOST RIVER BASIN**

**STREAMFLOW FORECASTS**

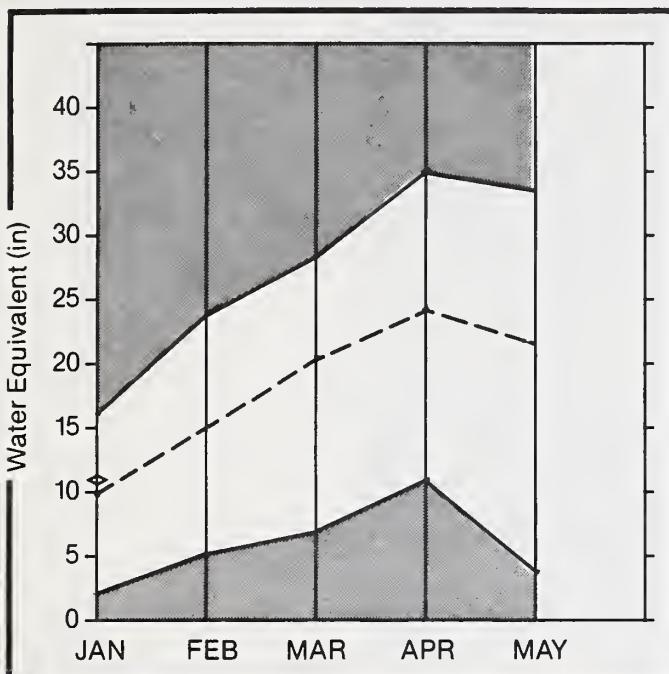
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
BIG WOOD nr Bellevue	APR-SEP	193.3	175.0	90.0	121.5	59.5				
	APR-JUL	179.8	165.0	91.0	122.9	60.6				
MAGIC RESERVOIR inflow	APR-SEP	307.0	282.0	91.0	144.0	39.7				
	APR-JUL	293.0	270.0	92.0	144.0	40.3				
LITTLE WOOD nr Carey	APR-SEP	100.9	91.0	90.0	124.8	55.5				
	APR-JUL	93.1	84.0	90.0	125.6	54.8				
BIG LOST at Howell Ranch	APR-SEP	211.2	200.0	94.0	134.5	54.9				
	APR-JUL	186.1	177.0	95.0	134.8	55.3				
	APR-JUN	144.4	136.0	94.0	134.3	54.0				
BIG LOST nr Mackay	APR-SEP	183.7	180.0	97.0	137.7	58.2				
LITTLE LOST b1 Wet Ck	APR-SEP	38.7	35.0	90.0	131.5	49.0				
	APR-JUL	31.3	30.0	95.0	137.0	54.2				
LITTLE LOST nr Howe	APR-SEP	42.2	40.0	94.0	135.0	54.5				
	APR-JUL	32.5	30.0	92.0	132.1	52.2				

RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS				
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.0	THIS YEAR AS % OF	
	THIS YEAR	LAST YEAR	AVE.	AVE.			LAST YR.	AVERAGE
MAGIC	191.5	85.3	133.3	82.1	Big Wood ab Magic	8	67	88
LITTLE WOOD	30.0	17.7	19.4	12.7	Camas Creek	3	67	111
CAREY VALLEY	14.4	4.4	5.7	---	Big Wood Total	10	66	92
MACKAY	44.2	20.4	30.0	25.5	Little Wood River	4	75	92
					Fish Creek	0	0	0
					Big Lost River	4	73	90
					Little Lost River	3	77	80

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

# Willow Creek, Blackfoot, Upper Snake, and Portneuf River Basin

Mountain snowpack\* (inches)



\*Based on selected stations

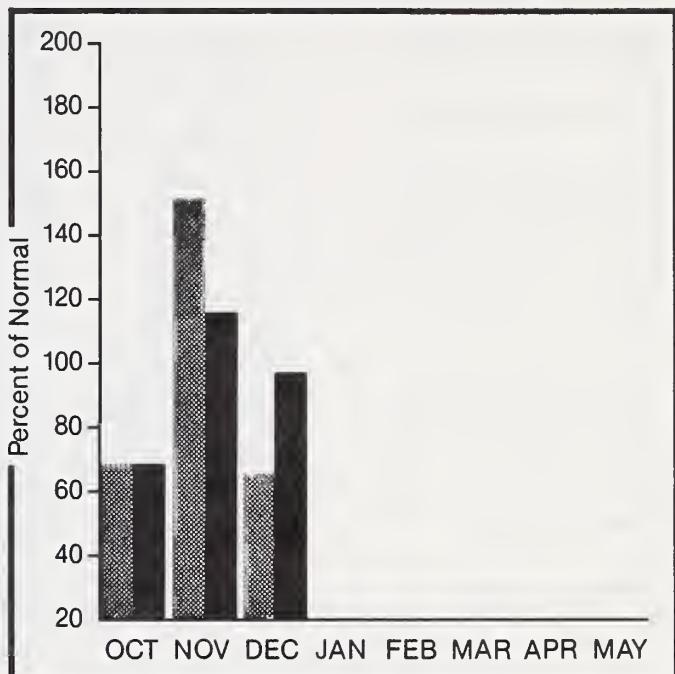
Maximum

Average

Minimum

Current

Precipitation\* (percent of normal)



\*Based on selected stations



Monthly precipitation

Year to date precipitation

## WATER SUPPLY OUTLOOK:

Snowpack conditions are currently near to well above normal, ranging from 97% of average on the Beaver-Camas Creek basin to 144% on the Willow Creek drainage. April-July seasonal volume streamflows are forecast to range from normal on the Henry's Fork and Teton rivers to 120% on the Portneuf at Topaz. Reservoir carryover storage ranges from near normal to well below normal. Soil moisture conditions are also below normal for this time of year.

For more information contact your local Soil Conservation Service office.

## WILLOW CREEK, BLACKFOOT, UPPER SNAKE AND FORTNEUF RIVER BASIN

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
HENRY'S FORK nr Ashton *	APR-SEP	714.0	714.0	99.0	114.0	86.0				
	APR-JUL	529.1	530.0	100.0	114.2	86.2				
HENRYS FORK nr Rexburg *	APR-SEP	1474.7	1470.0	99.0	124.7	74.7				
	APR-JUL	1153.3	1150.0	99.0	124.7	74.7				
FALLS RIVER nr Squirrel	APR-JUL	366.0	366.0	100.0	119.1	80.9				
TETON RIVER ab S Leigh Ck	APR-SEP	193.9	193.0	99.0	119.6	79.4				
	APR-JUL	145.0	145.0	100.0	120.0	80.0				
TETON nr St. Anthony	APR-SEP	465.0	465.0	100.0	120.0	80.0				
	APR-JUL	375.0	375.0	100.0	120.0	80.0				
SNAKE at Moran *	APR-SEP	880.0	900.0	102.0	122.3	82.3				
PALISADES LAKE inflow *	APR-SEP	3793.0	4100.0	108.0	140.1	76.1				
SNAKE nr Heise *	APR-SEP	4066.5	4390.0	107.0	139.9	76.0				
	APR-JUL	3464.8	3740.0	107.0	140.0	75.9				
SNAKE nr Blackfoot *	APR-SEP	5537.0	5810.0	104.0	137.9	71.9				
	APR-JUL	4465.0	4690.0	105.0	138.0	72.0				
FORTNEUF at Topaz	MAR-SEP	102.0	122.0	119.0	159.7	79.4				
	MAR-JUL	82.1	98.0	119.0	159.5	79.1				

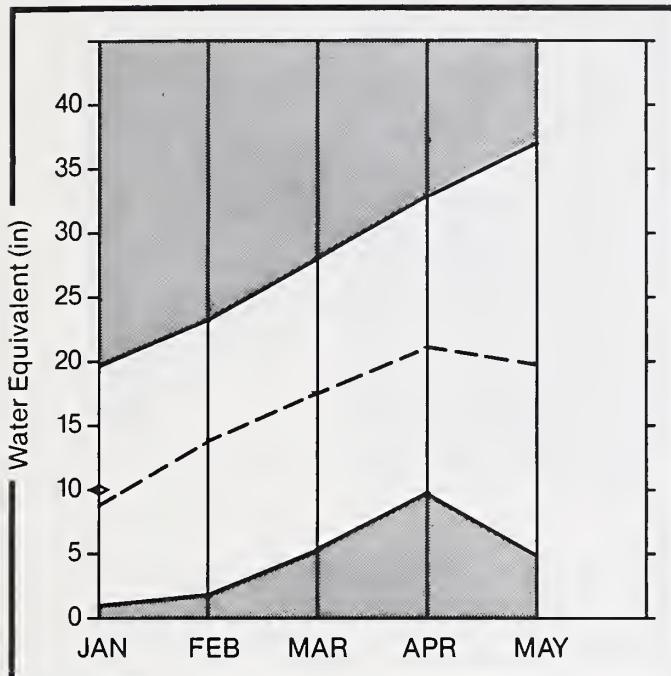
## RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVE.			LAST YR.	AVERAGE
ISLAND PARK	127.0	94.8	80.1	86.5	Camas-Beaver Creeks	3	110	97
GRASSY LAKE	15.1	0.0	12.9	10.1	Henrys Fork River	10	82	114
JACKSON LAKE	624.4	145.4	281.3	600.0	Teton River	7	74	102
PALISADES	1200.0	913.6	1063.0	1099.0	Snake above Palisades	18	86	111
AMERICAN FALLS	1673.0	941.6	1277.8	1296.9	Snake above Jackson Lake	8	73	111
BROWNLEE	980.2	769.2	698.1	818.5	Gros Ventre River	2	140	133
					Greys River	1	109	106
					Salt River	2	88	111
					Willow Creek	6	95	144
					Blackfoot River	2	97	129
					Portneuf River	3	95	133
					Toponce Creek	0	0	0

\*Corrected for upstream diversions or changes in reservoir storage.  
 Average is for 1961-80 period.

# Southside Snake River Basin

Mountain snowpack\* (inches)



\*Based on selected stations

Maximum



Average



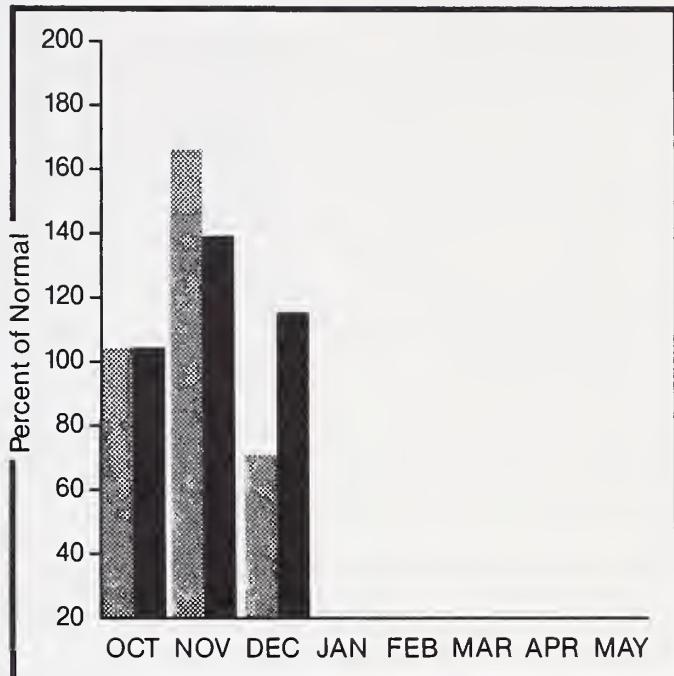
Minimum



Current



Precipitation\* (percent of normal)



\*Based on selected stations

## WATER SUPPLY OUTLOOK:

Snowpack conditions are above to well above normal, ranging from 122% of average on the Salmon Falls Creek drainage to 156% on the Owyhee River. April-July seasonal streamflows are currently forecast to be above normal, ranging from 113% on Salmon Falls Creek at San Jacinto to 120% on the inflow to Oakley Reservoir. Reservoir carryover storage is reported to be well above normal in Oakley, Salmon Falls, and Owyhee reservoirs.

For more information contact your local Soil Conservation Service office.

SOUTHSIDE SNAKE RIVER BASIN

STREAMFLOW FORECASTS

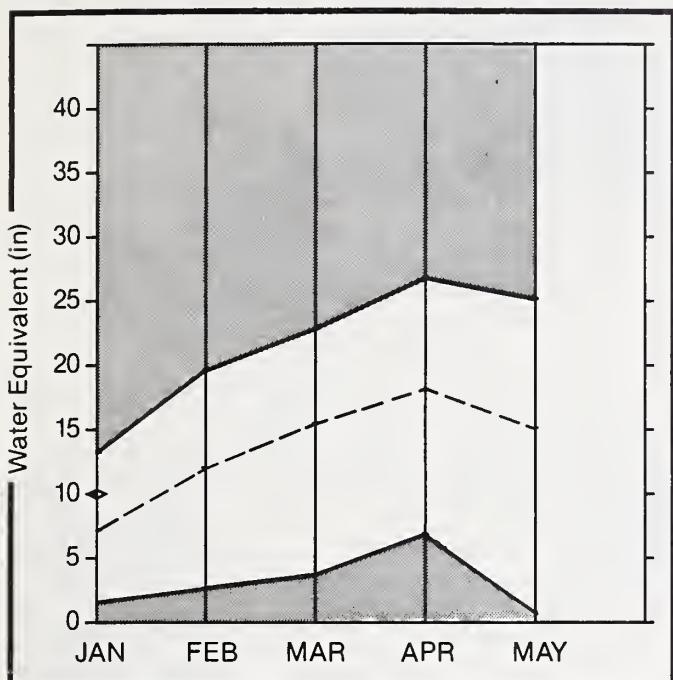
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
OAKLEY RESERVOIR inflow	APR-SEP	30.2	36.0	119.0	158.9	79.5				
	APR-JUL	27.2	33.0	121.0	161.8	80.9				
SALMON FALLS CK nr San Jacinto	MAR-SEP	93.9	106.0	112.0	155.4	70.2				
	MAR-JUL	89.3	100.0	111.0	154.5	69.4				
	MAR-JUN	84.3	95.0	112.0	155.3	69.9				
BRUNEAU nr Hot Spring	MAR-SEP	243.3	280.0	115.0	159.9	70.3				
	MAR-JUL	231.5	265.0	114.0	159.4	69.5				
OWYHEE RIVER nr Gold Creek *	APR-JUL	22.0	26.0	111.0	195.5	40.9				
OWYHEE RIVER nr Owyhee *	APR-JUL	85.4	96.0	112.0	163.9	60.9				
OWYHEE LAKE inflow *	APR-SEP	376.0	414.0	110.0	161.2	59.0				
	APR-JUL	349.0	385.0	110.0	161.3	59.3				
OWYHEE at Rome *	APR-JUL	376.0	413.0	109.0	162.0	57.7				

RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS				
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES	THIS YEAR AS % OF	
	THIS YEAR	LAST YEAR	AVE.	AVE.D			LAST YR.	AVERAGE
OAKLEY	74.4	35.3	40.7	22.6	Raft River	1	101	134
SALMON FALLS	182.6	90.3	130.4	41.6	Goose-Trapper Creeks	1	121	136
OWYHEE	715.0	422.6	583.4	394.7	Salmon Falls Creek	7	98	122
					Bruneau River	6	85	129
					Owyhee River	8	84	156

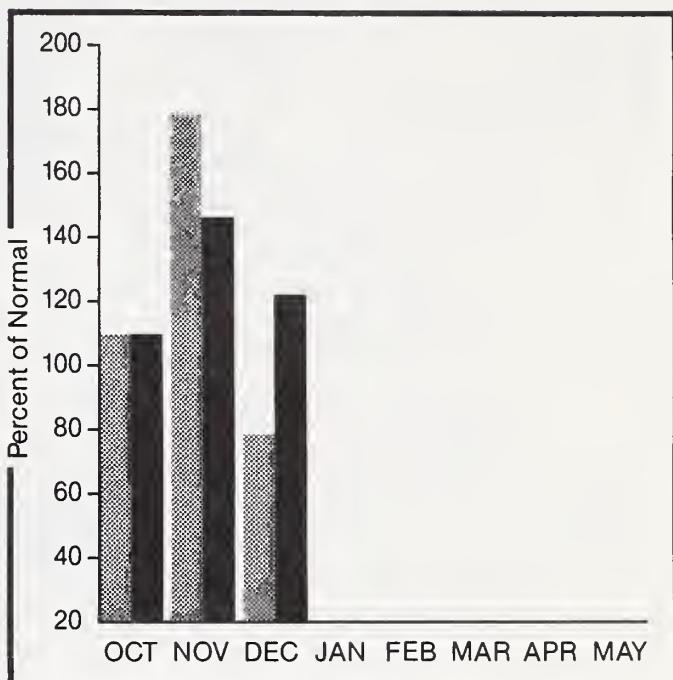
\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

# Great Basin

**Mountain snowpack\*** (inches)



**Precipitation\*** (percent of normal)



\*Based on selected stations

Maximum Average

Minimum Current

\*Based on selected stations

Monthly precipitation Year to date precipitation

## WATER SUPPLY OUTLOOK:

Snowpack conditions are well above normal over the entire basin. April-July seasonal volume streamflows are currently forecast to range from 105% on the Bear River at Harer to 120% on Montpelier Creek nr Montpelier. Reservoir carryover storage is reported to be near normal.

For more information contact your local Soil Conservation Service office.

GREAT BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
BEAR at Harer	APR-SEP	310.0	325.0	104.0	145.8	63.9				
MONTPELIER CK nr Montpelier	APR-SEP	13.9	16.8	120.0	165.1	79.0				
CUB RIVER nr Preston	APR-SEP	51.7	56.0	108.0	143.0	73.4				
	APR-JUL	46.8	51.0	108.0	143.1	72.6				

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVE.			LAST YR.	AVERAGE
BEAR LAKE	1421.0	1073.7	1095.3	973.3	Bear River	9	90	138
MONTPELIER CREEK		NO REPORT			Montpelier Creek	6	106	152
					Mink Creek	3	115	146
					Cub River	3	84	145
					Malad River	0	0	0

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

## 10 Years of Evolution in Snow Surveys

January 1, 1986 marked a critical turning point in the evolution of automated water supply forecasting for the Soil Conservation Service. On that date, the Centralized Forecast System (CFS) was officially made operational, giving hundreds of SCS field offices and other cooperators access to a powerful tool to aid in conservation applications and their cooperator operations.

The Centralized Forecast System has roots in the original efforts to measure mountain snowpacks and predict forthcoming seasonal water supplies. The Soil Conservation Service, Snow Survey Program, has been manually measuring snowpack and other water supply forecast parameters in the western U.S. since the 1930's. As equipment and measurement technology improved, it was only natural that automation would come to play an increasingly more important role. The automation process actually began in 1976 with the installation of the first automated SNOTEL (SNOW TELEmetry) sites. The SNOTEL system now consists of a computer facility at the SCS West National Technical Center (WNTC) in Portland, Oregon; two base stations at Boise, Idaho and Ogden, Utah; and over 500 remote sites located throughout the mountainous watersheds in the western U.S. Each remote site has sensors which continually monitor and store information pertinent to water supply forecasting. Snow water equivalent (actual amount of water in the snowpack), cumulative precipitation, and temperature data are the primary parameters currently being monitored at each site. Each morning, or whenever desired, the computer at the WNTNC sends commands to the two base stations telling them to interrogate all the remote sites. The base stations utilize what is known as meteor burst communication technology to poll the remote sites. As they send out radio signals, they are bounced off ionized meteorite trails high in the upper atmosphere. When the signal reaches a specific remote site, the remote site radios back stored sensor data immediately via the same meteorite trail. The base stations then relay this information to the computer system in Portland where it is processed and stored for use in forecasting and other purposes. Today, when snow survey hydrologists put together a forecast, they still rely heavily on manually read snow course data but the measurement task is continually being replaced with the automated system. As more automated sites are installed and longer term records become available, the hydrologist will depend less and less on the manual readings.

The next step in the SCS Snow Survey evolution took place in 1979 with the development of a large computer program called WYFOR, short for Water Year Forecasts. This program automated many of the tedious data interpretation, filing, reporting, and forecasting tasks. Before this program was developed, data interpretations, forecasting, and updating of long term records were very time consuming tasks requiring hand entries.

In 1981-82, the Soil Conservation Service took a hard look at the Snow Survey Program and where the program was headed. They found several things to be very apparent. First, there was overwhelming support for the program by users throughout the western U.S. Second, there was a need to begin to centralize and further automate the program. The program underwent a reorganization soon thereafter. Emphasis was placed on increasing dependence on SNOTEL data acquisition, forecast computer modeling, centralized forecasting, and development of field applicable forecast products for direct user use. A team of hydrologists was moved to the Portland WNTC to develop models and coordinate forecast activities with state snow survey personnel. Computer programmers and analysts were added to manage the computer system. A soil conservationist was also added to serve as a link between water supply forecasting activities and direct application at the local field level.

Vital to the reorganization effort was the development of the Centralized Forecast System (CFS), much of which descended directly from the WYFOR program. CFS is a whole series of interrelated, interactive computer programs stored on a Data General minicomputer at the Portland WNTC. These programs analyze and file water supply forecast data, produce forecasts and forecast reports, analyze forecast methods, archive historical water supply related data, produce special reservoir operation plans, and link forecast products to direct applications at the field level. It provides SCS field personnel and many cooperators with automated dial-up computer access to runoff projections as well as current and historical snowpack, reservoir, precipitation, and streamflow information. In addition, many programs are available to assist SCS field offices and cooperators with conservation and irrigation water management planning.

As demand for water increases, good water management will become even more critical than it is now and the SCS Snow Survey Program has been moving forward to meet these needs. The SNOTEL system and the Centralized Forecast System provide new technological tools for water users to access and utilize. If you would like to know more about the Snow Survey Program and how it can be used to make your water use operations more efficient, contact your local SCS office.

# The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

## **State**

Idaho Department of Water Resources  
Oregon State Engineer and Corps of State Watermasters  
Soil and Water Conservation Districts of Idaho

## **Federal**

U.S. Department of Agriculture  
Forest Service  
U.S. Department of Army  
Corps of Engineers  
U.S. Department of Commerce  
NOAA, National Weather Service  
U.S. Department of Interior  
Bureau of Reclamation  
Geological Survey, Water Resources Division  
Shoshone-Bannock Tribal Council

## **Local**

Big Lost River Irrigation District  
Big Wood Irrigation Company  
Boise Project Board of Control  
Idaho Water District #01  
Lewiston Orchards Irrigation District  
Little Wood River Irrigation District  
North Board of Control — Owyhee Project  
Salmon Falls Creek Irrigation Company  
South Board of Control — Owyhee Project

## **Private**

Cyprus Mining Company  
FMC Corporation  
Idaho Power Company  
Le Bois Resort  
Washington Water Power Company

Other organizations and individuals furnish information for the snow survey reports. Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
ROOM 345  
304 N. 8TH ST.  
BOISE, IDAHO 83702  
—  
OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

THIRD CLASS BULK RATE  
POSTAGE AND FEES PAID  
USDA - SCS  
PERMIT NO. G-267

**THIRD CLASS MAIL**

**Idaho  
Water Supply Outlook**

and

Federal — State — Private  
Cooperative Snow Surveys



SOIL CONSERVATION SERVICE